

[REDACTED] Heart Disease Regenerative Medicine Team Planning Award

Grant Award Details

[REDACTED] Heart Disease Regenerative Medicine Team Planning Award

Grant Type: Disease Team Planning

Grant Number: DT1-00698

Investigator:

Name:	Eduardo Marbán
Institution:	Cedars-Sinai Medical Center
Type:	PI

Disease Focus: Heart Disease

Award Value: \$38,980

Status: Closed

Grant Application Details

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Public Abstract: The present planning grant application lays the groundwork for a collaborative heart disease regenerative medicine team. We plan to develop sequential preclinical and clinical investigations directed at regenerative stem cell-based approaches to treating the following major cardiovascular diseases: heart attack and its sequelae; congestive heart failure; and heart block requiring a pacemaker. The basic foundation necessary to justify focused preclinical studies has been achieved by members of the collaborative team and by investigators elsewhere. We will plan detailed milestone-driven studies aimed at direct clinical applications in the above-mentioned cardiovascular diseases. Autologous adult cardiac stem cells (CSCs) will be used to treat myocardial infarction as well as cardiomyopathy. Cell delivery will be via catheters like those used to perform angioplasties on diseased coronary arteries. This work needs minimal additional preclinical work in large animals in order to be ready for regulatory filings in anticipation of human studies. To treat heart block, we will develop human embryonic stem cell (hESC)-derived biological pacemakers as a clinical product. Work to date has demonstrated feasibility at the proof-of-concept level, but preclinical studies in large animals will be required in preparation for an IND filing. We request funding to plan and establish detailed protocols to accomplish these studies, which will utilize existing facilities, and will leverage the resources and expertise of the collaborative team. Anticipated team members include experts in stem cell biology, clinical cardiologists and surgeons, imaging physicians, and leaders in clinical trial design. The planning grant will be used to obtain appropriate consultative expertise, to support collaborative team meetings, and to carve out time for the PI to prepare the definitive proposal.

**Statement of Benefit to
California:**

Few families in California are not impacted by heart disease. Cardiovascular disease remains the leading cause of death and disability in Americans—on average, cardiovascular disease kills one American every 37 seconds. The death toll from cardiovascular disease is greater than that for cancer, chronic respiratory diseases, accidents, and diabetes combined. Death rates have improved, but new treatments are urgently needed. Aside from the human costs, cardiovascular disease exacts a tremendous fiscal toll: the American Heart Association estimates that the total costs of cardiovascular disease in the United States will approach one-half trillion dollars in 2008. All taxpayers must bear the economic burden of resulting death and disability. Clearly, virtually all Californians stand to benefit, directly or indirectly, from the development of more effective treatments of cardiovascular disease. Heart disease is a particularly good target not just because of the magnitude of the public health problem, but also because heart muscle does not ordinarily regenerate once it has been destroyed by heart attacks and other types of damage. If our studies are successful, we may offer a cost-effective way to reduce the tremendous damage to Californians inflicted by major types of cardiovascular disease. This in turn may also reduce the economic burden presently borne by taxpayers who support the health care systems in California. In addition to the public health benefits, spinoff technology developed by this disease team will benefit existing California-based biotechnology companies, leading to fuller employment and an enhanced tax base.

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